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TOMORROW'S TEACHERS

THE editorial of our January number closed with the sentence "To this task of educating the educators we must especially address ourselves," and it is therefore with particular interest that we have received the McNair Report* on the training of teachers and youth leaders.

This is, without doubt, an excellent document. It recognises that the tens of thousands of extra teachers needed for the great new educational programme will not be forthcoming without a marked improvement of the status and remuneration of the profession of education. It recognises, too, that these teachers must be recruited from wider fields than hitherto, that they must receive a longer and more thorough training, and that when trained they must not be debarred from playing their full part in public life.

The Central Council submitted evidence to the McNair Committee and it is encouraging to find that its views have been largely accepted. It is true that the Council's recommendation that teaching should be made, in general, a graduate profession is not adopted in the Report; but by its insistence on a minimum of three years' training and by the proposal of one half of its members that training institutions should be grouped in University Schools of Education, the Committee goes a long way in the same direction. Then, quotation from the Report will make it clear that health education is to be an important part of the future training of teachers.

A necessary part of the course in the principles of education is instruction upon and observation of the physical and mental development of children. Teachers may sometimes be called upon to instruct older children in the elements of physiology; but, apart from this, some knowledge of the subject is essential for every teacher because every teacher is concerned with hygiene and with the posture and physical development of his pupils. In this sense physiology and physical education must be compulsory subjects for all students. Similar considerations apply to psychology, a subject which can easily be mishandled. Study of the mental growth and behaviour of children is vital to the teacher, but during training it must be

* Board of Education. *Report of the Committee appointed by the President of the Board of Education to consider the Supply, Recruitment and Training of Teachers and Youth Leaders.* H.M. Stationery Office. 1944. Price 2s.

study which is related to the student's personal experience and observation of children, and must therefore be intimately connected with his school practice. It is very desirable that young teachers, when they take their first post, should have some broad understanding of current thought in psychology, if only so that they may be alive to the fact that the backwardness of a child or his persistent bad behaviour may possibly have a psychological cause which demands the attention of some specially qualified person. When such specialists are called into the schools it is important in the interests of the child concerned that they should find in the teacher a sympathetic and intelligent colleague. . . .

Youth leaders are envisaged in this Report as people of equal academic and professional standing with teachers—indeed, as a particular type of teacher. It is therefore suggested that they also will normally require a three-year training course, with at least one-quarter of the time devoted to practical work.

Youth leaders should be able to conduct discussions with young people, and in this connection the Report comments:

There are three matters which are of great significance for young people—religion, politics and sex. They are certain to arise, sooner or later, in any discussions with boys and girls on social conditions or their own physical, mental or spiritual problems. Leaders must therefore be prepared to face them. There is a body of knowledge on all three subjects with which leaders should be acquainted, and for this purpose well-informed lectures and courses of reading will be necessary. Moreover, religion, politics and sex are highly controversial matters upon which conflicting and divergent views are conscientiously held. We therefore regard informal discussion on these matters as indispensable to the proper understanding of them, provided, and it is a very important proviso, that the tutor in charge is qualified by his or her own knowledge, balanced outlook and stable personality to be a reasonable guide on issues some of which are personal and intimate.

Readers of this Journal will also be glad to note how straightly the Report speaks about those

school premises which are mean, niggardly, ugly, or otherwise ill-adapted to their purpose

and how it condemns that marriage bar

which, in effect, rules that women with children of their own shall as a class be debarred from making any contribution in the schools beyond that of sending their children to them.

Altogether, this is a notable Report, and one to be studied closely.

HEALTH EDUCATION IN SCOTLAND

MESSAGE FROM THE RT. HON. THOMAS JOHNSTON, M.P.
Secretary of State for Scotland

THERE is, I think, general agreement as to the importance of a widespread and well sustained campaign for education in health.

Masses of people have no means of keeping contact with the discoveries of science. And masses of people require to have continually and forcefully brought home to them the vital part which the individual must himself or herself play in the achievement of good health.

The proposals put forward in the Government's White Paper for a National Health Service are intended to ensure that every man, woman, and child in the country will have unrestricted access to whatever form of medical care and attention he may need. But an enlightened public must co-operate if the best results are to be obtained.

It is hard to think of any aspect of health or disease in which health education, of the individual and of the community alike, has not a vital part to play.

Immunisation against diphtheria is a striking example of what can be done. The percentage of the Scottish child population immunised was raised, by a vigorous educational campaign, from about 10 per cent in 1940 to 67 per cent. in 1942. The result was that deaths in 1942 fell to a record low level, under half the 1940 figure, with a further decline in 1943. But indications of a renewed upward trend in incidence and mortality, combined with a falling-off in the immunisation ratio, are a reminder of the need for sustained effort.

Attention has been focussed by the Boyd Orr report on the rate of infant mortality in Scotland. True there are vital questions of Housing, Wages, Employment, to be faced by the Scots people. But also, in the words of the report, there is widespread ignorance of simple rules of hygiene and principles of dietetics.

Again, there is venereal disease, on which a report from the Medical Advisory Committee was published recently. In the view of that Committee there is no reason why venereal diseases should not cease to be a scourge in this country within a very short time if a concerted and persistent effort is made. The publicity campaign started in 1943, has, the Committee find, already had a measure of success, and they stress the need for education and propaganda addressed to the individual as well as to the community as a whole.

To encourage the pooling of ideas upon the achievement of good health

and to assist in the organisation of campaigns and the provision of material suitable to Scottish conditions, the Scottish Council for Health Education has recently been set up. It is supported mainly by the Local Authorities, and the active participation of all of them in the Council's work is most desirable.

Health education should begin at an early age, and from the nursery classes up to the highest forms our schools provide a splendid opportunity for cultivating habits and imparting knowledge that will be a sound foundation for healthy living in later life.

Education for health could dry up at the source so much needless suffering and incapacity, and I would bespeak for the propaganda efforts of the new Council, the active co-operation and encouragement of the Local Authorities, the Churches, the Cinemas, the Schools, and the Press.

SUMMER SCHOOL IN HEALTH EDUCATION

At the request of the Ministry of Health and the Board of Education, and in order to relieve the strain on the country's transport system it has been decided to cancel the Summer School which was to be held at Durham and to limit attendance at the London School (9th to 19th August) to persons resident in London and the Home Counties.

The ground to be covered will include a consideration of the aims, possibilities and methods of health education (including sex education); population trends, human heredity and vital statistics; the physical and emotional characteristics and needs of the child and the adolescent (including the adolescent in primitive communities); the influence of social factors on bodily and mental health; plans for nutrition in the post-war world; and an outline of the communicable diseases (and their influence on history) and of the principles of bodily and mental hygiene.

There will be several seminar and open forum sessions, including one at which various religious and ethical views on sexual morals and behaviour will be brought forward for discussion.

A feature of the school will be the displays of educational material—not only that of the Central Council, but also that of various organisations concerned with special fields of health education.

PROBLEM CHILDREN

By C. W. Valentine, D.Phil.
Professor of Education in the University of Birmingham

Is there a Problem Child?

Children cannot be divided sharply into two groups, problem and normal,* any more than adults are divisible into two groups—normal and neurotic. There are fine gradations, and most children, if not all, at some stage present a problem in discipline. Indeed one might say paradoxically that it is a normal thing for a child to be something of a problem child at some stage, and it is a bad sign if he is not. Thus, in one investigation, observations were made on the later development of a hundred children who passed through a period of revolt and aggressiveness between the ages of about two and four, and on another hundred who showed no spirit of revolt at these ages. Of these last, who were completely docile at this stage, only 26 per cent showed normal development of character later, the others being described as revealing "feebleness of will-power"; whereas of the children who were aggressive and at times "difficult," 84 per cent were found to develop normally later on.

I could, indeed, quote several examples from my own family to show that anger and aggression at this period is consistent with satisfactory development later. First, one of my boys between two and three years of age sometimes fell into violent rages, rolling on the floor in revolt against quite mild restraint. Yet later this boy showed an exceptionally equable and good-tempered nature. (I may add that he was mentioned in despatches for calmness and good service at Dunkirk.)

Second, one of my little girls at two and a half indulged in some violent outbursts. On one occasion she even struck her nurse with a knife and afterwards boasted, "I did bleed her!" Yet later she became not only what we should call normal but rather exceptionally gentle and sympathetic towards any distress shown either by persons or animals.

I might add the record of a third of my children as an example of the way in which apparent excessive nervousness at an early stage is no indication of future development. This second girl between three and four had a long series of hysterical night-fears which were very troublesome. Yet later she became exceptionally courageous; thus she was a fearless horse rider, enjoyed swimming in rough seas—and developed a passion for aeroplane flying. She recently volunteered for anti-aircraft work in the A.T.S. Yet

* An article by Professor Valentine upon the Discipline of the Normal Child will appear in the October issue of the Health Education Journal.

night fears are said by a leading Child Guidance doctor to be an indication of a "nervous" child!

I do not wish to give the impression that because some rebellion and aggression are usual at these early stages, therefore they should be *condoned.* On the contrary, I think they need careful and sometimes firm handling—but in accordance with principles to be suggested later. Here I am only pointing out that they are not to be regarded as signs of abnormality and future disaster.

Standards of Conduct

It is a mistake to expect that the normal child shall be invariably well behaved, or for the parent to set too high a standard of conduct at too early a stage.

I recently read with amusement the records of an American Nursery School. One mother was said to be distressed because the school report on her little boy of *three* said that he was "lacking in co-operation and in leadership" and was "not socially conscious!" This idea that the child's progress can be tested by estimating how near he comes to the ideal conduct of an adult needs eliminating.

It is surprising how many people who seem to have little real familiarity with normal little children nevertheless write and dogmatise about their nature. It is also surprising how often one finds a lack of a sense of humour, which might help them to understand the child a little more. Even Adler, who undoubtedly did valuable work for young children, displays this. He states that one boy, when asked what he wanted to become, said that he wanted to become a hangman. Adler solemnly adds the comment, "This displays a lack of social interest."

The fact seems to be that many children, perhaps most, pass through various phases in the development of their character in which they experiment with different forms of behaviour; that there is something in early childhood corresponding to the 'sowing of wild oats,' usually associated with adolescence and young manhood.

Again I must guard myself against misunderstanding. My argument does not imply that we should allow all sorts of extreme naughtiness; but only that while applying judicious restraint, we need not worry ourselves unduly over children who are at times boisterous, mischievous and even violently independent, provided these stages do not last too long.

Nor must we be discouraged by the ill-founded assertions of Freud, Adler and others that a child's character is finally decided by the age of four or five. The great improvement that takes place in many children merely on entering the Infant School is itself evidence against this. A follow-up study of 84 children treated at a Child Guidance Clinic showed that some years afterwards 40 per cent of the 'failures' who had not been cured

had later spontaneously recovered; while 40 per cent of the reported 'cures' had relapsed. There is indeed no real evidence that all questions of character are settled during early childhood; and this is an encouragement to those who are able to influence the development of young people only at the stage of adolescence.

Nature and Nurture

Another assumption which is often made in discussions about the discipline of children must also be questioned, namely the unjustified assertion that anything that is wrong in the character of the young child must be due to faulty training during early years, to bad example, or to over-severity or over-petting. Such a view may cause distress to many conscientious parents who have trouble with their children, but have done their best to bring them up aright. This view fails to allow for the plain fact of inborn individual differences in character and temperament. We know that within a few weeks of birth extreme degrees of difference may appear, both in physical and in intellectual traits, from the born idiot to the active, alert baby that soon reveals a high Intelligence Quotient. So we have good reason to believe that in such temperament traits as aggressiveness, fear, anger, sympathy, and so on, there are equally great inborn differences. If there are still possible inborn physical defects so severe that the child dies in a few days, how much more likely is it that nature will allow abnormal inborn temperamental traits! In other words we have some psychological justification for the basis of a doctrine of original sin. Even the Dionne quins showed differences in temperament although they were brought up in precisely the same way and in the same environment. We know also that the same training in the same family leads, with different children, to very different results.

It is not my wish to under-estimate the supreme importance of the influence of home affairs; indeed I should like to stress it. But we do no service to truth and progress by exaggeration or by ignoring other and more hidden causes of later development. No doubt the facts show that the broken home—with parents separated or one dead—is much more likely to produce the problem child than is the unbroken home. Nevertheless many children survive what seems to be the worst possible type of home influences. Not all brothers and sisters of problem children are themselves problem children. Hirsch, an American investigator, found that of over 4,000 brothers and sisters of juvenile delinquents, over 70 per cent of the boys and over 80 per cent of the girls, though brought up in the same homes, were not themselves delinquents.

Again, we may recall the results of Burt's famous inquiry about his 200 juvenile delinquents and 200 normal children in similar homes.* 58 per cent

* Burt. *The Young Delinquent.* University of London Press.

of his delinquents came from defective homes; but so did 26 per cent of the non-delinquents, and yet they survived their bad environment. The Tavistock Clinic made a follow-up study of 500 children, treated at the Clinic, for three years after the treatment was finished. They found that some children recovered in the face of apparently insuperable difficulties, while some retained their maladjustments for reasons which could not be discovered.

Summing up, the facts seem to point to this: that in the whole mass of children there is a certain proportion who will develop satisfactorily even in a very bad home environment. There is a small proportion who will become problem children and delinquents in spite of good surroundings and of what seems to us at present wise training. There is another section, probably much the largest, whose future development depends largely upon the kind of early training they get. With our present knowledge of child psychology we can hardly say at an early stage to which of these three groups the child may belong. Future research may help us here. For the present it is a wise plan to act on the assumption that environment and training are supremely important. Nevertheless, while doing this, we must bear in mind that an unknown and possibly important factor is the influence of inborn tendencies, which may require special treatment which only further research and experiment will show us how to give.*

BIOGRAPHICAL NOTES

K. E. Barlow, M.R.C.S., L.R.C.P.—Trained to shipping and banking. Secretary to the late Sir Patrick Geddes. Studied medicine at Middlesex Hospital. Qualified 1936. Now in general practice at Coventry. Author of *The Discipline of Peace.*

J. R. Busvine, B.Sc., Ph.D., F.R.E.S.—Research on various problems of applied entomology at the Stored Products Laboratory of the Royal College of Science and at Hawthorndale Laboratories of I.C.I. Received grants from the Medical Research Council to work with Professor Buxton, F.R.S., on control of lice. Since 1943, Entomologist to the Ministry of Health.

Jessie Reid Crosbie, M.B.E., M.A.—Headmistress, thirty-seven years in Salisbury Council School, Liverpool. Decorated by King George V in 1933, M.B.E. Honorary Degree of M.A. from Liverpool University, 1942. Broadcast to America upon "Co-operation between School and Home," and on the Home Service upon "A Curfew for Children" and "Minding the Children." Has lectured extensively to educational bodies.

* For further details of the influence of innate and environmental factors see Valentine. *The Psychology of Early Childhood.* Methuen. 2nd edition. 1943. pp. 20–26.

PUBLIC OPINION AND VENEREAL DISEASES

By Ian E. McCracken, M.D., B.Hy., D.P.H.
Medical Officer of Health, Newcastle-on-Tyne

Why not make the venereal diseases notifiable? How does this country compare with others in regard to the amount of venereal disease? Will not immorality increase if people are told that venereal diseases can be cured easily? Is it safe to billet a case of venereal disease in an ordinary household?

Pertinent questions surely. But only typical of many asked at a series of discussions on the venereal diseases held in a Northern city during this winter. The seven meetings, which made up the series, were one phase of a semi-regional experiment planned to explore some of the social problems of venereal diseases and they were designed to attract representatives from all groups of a community comprising industrial, commercial, mercantile, mining and agricultural elements, who would be likely to contribute to preliminary discussions on what could be done about these problems. Social and moral welfare workers, nurses from all branches of the profession, police officers and probation officers, representatives of Trade Union organisations, local authority representatives and officials, clergy and teachers, magistrates and Justices' clerks and responsible citizens from various other vocations formed audiences of rather more than a thousand all told.

Obviously, selected audiences of this kind cannot be construed into a random sample of "the man in the street," but they represent a handsome section of the thinking part of the public from which, so social history tells us, public opinion really emanates, and the ease with which discussion was joined at these meetings soon proved that they were a body of people who viewed the subject as one ripe for talk.

How Are Things Going?

Can a review of the type of question they raised give any inkling of what the public now think about venereal diseases? An attempt to draw valid conclusions from such casual material is, of course, a step which is open to criticism, and it could barely be justified were it not for the fact that the success or failure of the present anti-venereal diseases campaign depends so largely on the outlook of the public towards it and that there is, in consequence, a natural impatience on the part of all who are interested in the campaign to know how things are going. Something of the same urge must have inspired that official assessor of public opinion, War-time Social

Survey, to try to secure for the Ministry of Health an early preview of the public mind. The auspicious findings out of their investigations have been summarised as follows:—

> "The Survey was able to show the Ministry of Health that the popular reception of the Venereal Diseases Campaign was overwhelmingly successful and was able to check the extent to which the messages had got home."

This pays a marked tribute to the publicity side of the campaign and augurs well for the endeavours now being made to bring these diseases out into the open and to cleanse the public mind of prudery: but valuable though it is, the report lacks penetration in an important direction in that it gives no indication of how the public mind is shaping itself now that it is free to think about and to discuss venereal diseases. Is public opinion really following the lines of the venereal diseases policy adopted by the Central Council for Health Education or is it branching out on some unexpected line of its own?

The Formation of Public Opinion

Public opinion is a fickle affair and in this country where official propaganda is educative rather than inspired, public opinion is not necessarily its mirror image. Therein lies a danger, unless close liaison is maintained, of the two getting out of harmony. True, in practice, difficulty on this score is infrequent because the formation of public opinion is ordinarily such a leisurely process that propaganda can scarcely lose touch with it; but to-day that keener receptivity of the public's war-conditioned mind, which has surprised both politicians and the press on more than one occasion, has to be reckoned with. Napoleon, who had good reasons for studying a war-time public, devoted part of each day to the examination of seeming trivialities such as posters, advertisements, accounts of literary, fashionable or educational meetings, sermons and "anything that may be of interest from the political or moral point of view."* The questions raised at these Venereal Diseases meetings fall well within his definition and *faute de mieux* observations on them are offered to a wider audience than they originally enjoyed.

Perhaps it was the quality of the original audiences, but whatever the cause, it was evident that nearly all the questioners were disposed to raise broad issues, and the questions themselves were so expressed that they contained more than a hint of the speakers' own views: only a few were of that 'satiable curiosity' type and put so bluntly as to give away nothing of the speaker's mind. This being so it has been easy to classify the great bulk of the questions under three broad heads—political, social, moral, according to the line of thought revealed.

* Carola Oman, *Britain against Napoleon.* Faber & Faber.

Political Action

It is almost disconcerting to find how frequently coercion in some form or other was voiced as the appropriate method of tackling this or that part of the problem. Very nearly half the questions advocated political action in some form or other, and usually implied legislation of the type which Herbert Spencer, in the pages of *Man versus The State*, so roundly condemned as being gross infringements of the liberty of the subject. For example, uncompromising proposals for the compulsory notification of venereal diseases were brought forward at every meeting with unfailing regularity and, though the speakers were rarely clear on the point, compulsory notification was undoubtedly synonymous in their minds with compulsory treatment. Alas, the tone of these particular questioners was that of King Edward in his famous "if preventible why not prevented" dictum on tuberculosis, and there were no accompanying specious arguments to brush aside the pitfalls which surround the principle and practice of compulsory notifications.

The surrendering of ante-natal and pre-marital blood specimens was also regarded by some as a matter which should no longer be dependent on the consent of the individual, and in this connection the knotty problem was raised of whether a husband could at present refuse to allow a routine examination of his wife's blood to be made. There were also those who foresaw the ultimate control of these diseases through periodical medical examination becoming obligatory for all adults.

Understandably the sale of alcohol was on every occasion included in the catalogue of matters to be controlled, but on the whole the inclination seemed to be in this case to limit control to a real ban on the sale of intoxicants to young persons, and there was no evidence of enthusiasm for a repetition of the 'no treating' order experiment of the last war. Along with the alcohol question certain types of literature and films were referred to by a few as being other potential sources of overstimulation of youthful passions calling for stricter supervision.

The restriction of the sale of contraceptives to married couples was mooted on one occasion, but this view was at once offset by another which regarded the devices as having some general value in reducing the risk of infection through promiscuity.

The problems of prostitution were considered from various angles. The theory of licensed prostitution which used at one time to exercise the public mind failed, rather surprisingly, to produce more than a single question, and it would seem that the snags in the so-called continental system are now more widely appreciated. Prostitution was also raised at almost every meeting in rather querulous questions about the small contribution made by the police towards reducing or interfering with immoral houses, and this led to many pleas for the immediate establishment of larger forces of women

police. On the question of the amateur prostitute the opinion was freely expressed that special powers of control should be given over girls with the twin afflictions of low intelligence and promiscuous tendencies.

With all this talk of compulsion and control one would have expected to hear at least a word in support of Regulation 33B or some reference to it as being a first step towards political action. But none was forthcoming, and in fact that Regulation suffered the cruellest of fates for young ambition for it was virtually ignored, and this despite certain press publicity given to it at or about the time of the meetings.

Social Action

When the questions which can be grouped under this head are examined it is clear that, in contrast to the previous group, the majority of them are concerned with the long-term attack on venereal diseases and that only a few are endeavouring to solve the immediate problems. Sex education in some form or other was far and away the most popular topic in this section, and though questions devoted to it were not quite so numerous as those concerned with political action they were very much more homogeneous and amounted to a solid block of uniform opinion. Sex education in primary schools, in secondary schools and in youth organisations were all warmly supported along the lines since laid down by the Board of Education pamphlet on the subject. In fact if any weight can be attached to opinions expressed at these meetings it can be accepted that the Board's policy will have an enthusiastic reception.

The questioners were all out for information and guidance on the appropriate technique for sex instruction. How to approach the subject? At what age? Whether in mixed or sexed groups? There was a tone of eagerness to get going on the part of the speakers and an implied determination that the rising generation should not be deprived of a blessing not enjoyed by the present generation of adults. Over and above this line of approach some speakers visualised sex education as an all-embracing policy which should include special education for marriage and for expectant parenthood, and the slightly cynical view was also expressed that the first step towards this form of education should be directed at present-day parents in general, and elected representatives of local authorities in particular, to impress upon them their respective responsibilities in this connection.

Apart from education, questions with a social outlook on the problems were disappointingly unconstructive. Are there enough almoners and social workers for the work? I have some experience of ordinary social work, what can I do to help? How do other countries (particularly Russia) tackle the problem?

The impression was unmistakably that of social workers ready to explore

a field of work previously closed to them, but feeling that it would require to be approached with exceptional delicacy and by a special technique.

The only constructive proposals made with the immediate problem clearly in mind were that hostels should be established for the rehabilitation of prostitutes, that there should be treatment allowances for venereal diseases comparable to the new tuberculosis allowances, and a proposal, which smacked of the old English genius for corporate social action, that local Vigilant Societies should be formed to patrol the well-known rendezvous of prostitutes.

Moral Issues

Somehow or other the medical issues and the moral issues appeared to be very much more companionable in the discussions on these occasions than they had been during the Central Council's Conference in February last year. The moral aspects and the moral approach were inherent in quite a number of the questions, but were now almost interwoven with views showing an appreciation of the necessity for attacking the problems with even greater vigour from other angles.

One speaker, who like the Primate acknowledged the feebleness of the Church front in the past, did condemn any form of venereal diseases publicity other than that which advertised only the doctrine of moral restraint; but with this single exception the problems were clearly being regarded as medical ones with marked social and moral repercussions.

The clergy who spoke seemed most concerned to find out how their precepts to youth could best be made complementary to the new schemes for sex education, a development which would have been even more gratifying to them had the intention been to make the basis of the instruction psychological rather than physiological.

General Impressions

A haphazard collection of thoughts and ideas such as have been recorded is not the kind of material from which conclusions can be drawn, but without indulging in wishful thinking it seems possible to pick out of it here and there an impression of the general trend of opinion on the best ways of tackling the venereal diseases problems.

Firstly the public, or at least a good section of it, is now prepared to talk intelligently and openly about the problems, and is glad to be able to do so. Next it is anxious to get something done about them, and while prepared to accept education as a basic remedy it looks for other measures which will be more immediately effective. Finally, it inclines to the view that in attacking these particular diseases the introduction of an element of compulsion would neither be inexpedient nor unreasonable.

WHAT THREE BONES DID

By Jessie Reid Crosbie, M.B.E., M.A.

Early Days

The school of which I was Head for many years is in a very poor, congested area of a large seaport. Some of the children were very clean, tidy and healthy; but most were poor, dirty, very neglected and badly clad. These latter were in appearance, as I often said, "Too old, too young."

Of course the work was very difficult, for we began before the days of School Medical Inspection, and the great battle was always with dirt, untidiness, bad habits, poverty and ignorance. There were no baths or proper cleansing facilities in the homes, and everything around combined to make it almost an impossibility for our little ones to be clean and healthy. Many of them had only one set of underclothing and no change, so we opened a picture book library and issued books on Friday afternoon to the children who had to stay in bed on Saturday morning whilst Mother washed their clothes. Clean bodies, clean heads, clean clothes—these we sought long to secure, and we succeeded beyond our fairest dreams.

In the early days I gave the poorest and most neglected children a weekly bath in a large dolly tub in the basement of our school. Later, when our Education Committee installed two trough baths, this was no longer necessary, for the mothers themselves came to school and bathed their children regularly during school hours. Afterwards *they* had a bath in one we had provided specially for them in the nursery wing.

I must mention here that all laundry work necessary in connection with the nurseries and the bathrooms was done by the mothers for very many years. They came in and out of our school quite freely, for it was theirs—they were our colleagues in the home. They never once became a nuisance or abused any of the privileges we so willingly extended to them.

With the bathing all our children were clean, sweet and wholesome, and I do not need to say that their health improved wonderfully.

I remember a very pitiful incident in the old dolly tub days. We had taken Louie—a typical slum child, dirty and neglected, unwashed and unloved—downstairs for her bath. As I commenced to take off her poor, dirty clothes she screamed and fought, greatly to my surprise. I showed her the little parcel of clean clothes which were to be hers, tried to coax her into the warm water in the large tub, but without success. I had almost given up, when the little girl between her sobs said, "Oh, Teacher, please let me go back to my class. I will be such a good girl always if you will. Don't put me in there. I don't want to be drownded!"

Louie had never known washing day; the only time she had seen the dolly tub used was when unwanted kittens and pups were drowned.

Health Education

The health teaching in the nursery classes and also with the older children was a special feature of our daily work. Each morning all children in the nursery classes (we had three of these) were trained to clean their teeth, to blow their noses, and to gargle their throats with a solution of Condy's Fluid. They just loved these daily exercises, and looked upon them as great fun, which we certainly tried to make them. The mothers saw that the children continued these exercises at the week-ends and during holidays.

The children also had daily rest periods, for at least an hour. During the summer the tiny tots slept out in the schoolyard under an awning, which protected them from the hot sun and the wind.

We were most successful in persuading the parents to have their children's teeth and eyes attended to when advised to do so by the School Medical Officer. They were all particularly keen also to have their children immunised against diphtheria.

Of course, these results didn't just happen. I have often said that it was "What three bones did." 'Funny Bone, 'certainly,—for without a gift of humour we would have given up in the early years. 'Back Bone,' yes. A real determination to get things done, and also the 'Wish Bone'—inspiration was certainly needed to fill us all, parents and teachers alike, with faith and hope for the future.

Parent-Teacher Co-operation

I always felt that it was surely very shortsighted policy to permit the spending (quite rightly) of time and money on the provision of marvellous school buildings, and on their expensive equipment, and to train teachers for these schools—and at the same time to neglect to provide decent homes for so many of our people, and to pay no attention whatsoever to the preparation and education of our country's potential parents for their task, which surely is the noblest and most important profession of all.

The truest training of children is in the home. What the child learns there nearly always remains—whether good or ill. High moral training in good habits and right behaviour is paramount, and the teachers who count most are the parents. The school can only take second place. Realising this, I determined to secure the active co-operation of the parent and to make this so real and vital that school and home, parents and teachers, would work together for the children's 'Education for Life.'

We commenced with the mothers, holding monthly meetings in school at which we discussed "Child Welfare," "Mother's teaching work in the home," and many other subjects. Afterwards, we opened our fathers' meetings. These were all held in the evening. The addresses for the men included "The Influence of Home Life," "What to Do with Our Lads," "Sympathy

and Interest in Children's Leisure Time," etc. These lectures were always followed by keen discussion, and we knew that they met and satisfied a very big need in the men's lives.

Readers will readily understand what a great difference all this made to our school. Children were sent to school clean and tidy, regularly and punctually. A dirty or verminous child was very rarely, if ever, seen. Our attendances were excellent, and no child was ever absent without very good reason. Such was the happy co-operation between school and home. The mothers and fathers came in and out of the school, discussing the problems of their children with us—all working together for the common good and the common aim. It was "Their school," they said, and so its interests were safeguarded; its success and well-being their pride. Surely this was a consummation "devoutly to be wished and attained."

The Curfew

As well as working for many years for a clean school, we instituted a curfew for children, and this was one of our greatest aids in really securing the health and happiness of our scholars. Children require good food, fresh air and restful sleep, and the first two are not of much use if the third is denied.

Late hours are a very serious handicap in the true education of children. Lack of sufficient rest lowers the child's resistance to disease, and is the direct cause of many mental ills and nervous disorders. We knew all this, but our business was to teach and convince the parents. This was done by homely talks and advice at our Fellowship meetings. It was not long before a great improvement was noticed, and this continued until the curfew became an established custom in our district. In our school over 90 per cent of the children kept good hours and had sufficient rest and sleep. The results could be seen in the children's healthy, lively, and alert appearance, in their regular and punctual attendance, and especially in the interest they took in their school work. Not only did the curfew help in establishing good health, but it also went far to secure good habits and to lessen juvenile delinquency. An earlier bedtime for children gave less time on the streets, and so less time for mischief. By making them healthier in body and in mind, mental balance was maintained and delinquency offered less charm.

The times in which we live are becoming increasingly difficult. The future is full of problems which may well menace the peace and security for which we are fighting. The solution of these problems will tax democracy to its utmost. The children of to-day are the men and women of to-morrow. They must be well equipped for the serious tasks which will inevitably be theirs. The best gift we of an older generation (who nearly all had the advantages of wise home training), can make to the community is that of a sane, controlled, strong and healthy people who will face this difficult job with courage, sagacity and hope and carry on the British traditions of the past.

DESIGN FOR DENTAL HEALTH

By Bernard R. Townend, L.D.S. (L'pool.), *Senior Dental Officer, County Council of the West Riding of Yorkshire*

It would seem reasonable to accept as axiomatic that the ideal of optimum health for everyone must be the aim of all who are interested in or employed in the care of the health of the nation. The economy of the human organism is such that close relationships exist between different parts of the body, and it is impossible for the whole to be healthy if a part is diseased. It is obviously important that the health of the teeth and mouth should be cared for particularly in view of the widespread and almost universal character of dental disease.

The incidence of many diseases in relation to the total population is comparatively small, yet vast sums of money are expended, and great efforts are made, to educate the public to the realisation of their dangers and the means by which they can be combated. This concern is understandable and natural because in spite of the relatively small incidence of such affections as diphtheria, tuberculosis, etc., they frequently have dramatically disastrous or even fatal terminations. Dental disease is rarely fatal in itself, but there is ample evidence that its insidious progress is a factor, and a very considerable factor, in providing a gateway for the entry of more serious conditions and in producing a lack of complete physical fitness and a general lowering of the body's resistance to disease, which does not allow the realisation of our ideal of optimum health.

A National Problem

Dental disease in one form or another attacks practically 100 per cent of the population, yet the efforts and money spent in educating the public to an awareness of its dangers are relatively negligible and, what is worse, they come largely from two sources, the dental profession itself and the manufacturers of dentifrices. It seems quite wrong to the writer that educative efforts to control a virtually universal disease should be very largely the concern of these two groups, both of which may be accused, with some degree of truth, of having vested interests in the disease and so not above suspicion. The problem of the control of dental disease is a national problem, and as such the education of the public in the realisation of its dangers and the best ways by which control may be effected, should be a national affair having available whatever national resources its importance merits.

Dental health education of the past and of the present day presents a somewhat blurred outline. Considerable confusion exists in the lay mind as the result of several programmes each with a different label. In one, dental

hygiene is emphasised as being the most important factor; in another, diet and nutrition are stressed and in yet another the value of dentifrices is made much of. These different fields of endeavour should be brought to a common focus with the single label, the control of dental disease.

Further confusion arises from our lack of knowledge of the true etiology of dental disease, especially dental caries. Two opposing schools of thought exist. The one claims that proneness to dental decay or immunity therefrom is inherent in the structure of the tooth, while the other considers that disease is brought about by the environmental conditions in which the tooth exists. While not expressing an opinion as to the relative merits of these two theories, the very vehemence of their respective supporters would seem to indicate that no one factor is responsible for the condition and that extreme views expressed in either direction may do more harm than good.

The Control of Dental Disease

Although some degree of control can be gained by hygiene, diet, adequate vitamin intake and all the other hares which tempt us from our path, in the present state of our knowledge, the most important factor in the control of dental disease is early inspection and treatment by the dentist followed throughout life by frequent, regular and systematic attention, all defects being remedied in their very early stages of development. Such a programme is the only practical and economic solution of the problem in the light of our existing understanding. This fact is so important that it may well be amplified. Prevention or control of any condition or disease may be classified into primary and secondary measures. By primary measures we endeavour to do one of two things. We either try to create or develop an organism so well that it is unaffected by its environment, or we try so to modify the environment that the organism will not be wrecked or contaminated by it. By secondary measures we use appropriate therapeutic devices to stop the imminent or established imperfection from running its full course, and it is clearly obvious that the success of such methods of control depend largely on their early application.

Complete Protection Impossible

Let us take an example in everyday life. If our houses and their contents were made of unburnable materials, we should undoubtedly prevent fires. This could be described as primary preventive control, but the creation of such a state of affairs is hardly within the range of practical probability. Yet it is within reason to do all we can to obtain something approaching this ideal. At present, and for many years to come, the fire-fighting services, which may be regarded as secondary measures, will remain the major part of fire prevention, and their success depends upon their knowledge of fire fighting, their skill, the efficiency of their equipment, the early detection of

fires and, last but by no means least, the co-operation of the public. The analogy between the control of fire and of dental disease is almost perfect. Primary protection against dental disease presents many problems and complete protection is impossible. It would involve a vast eugenic programme which would have to control mating, breeding, environment, diet and a number of contributory factors which, apart from the fact that they are little understood, would be completely distasteful to everybody. We should not be deterred, however, from applying whenever practical what knowledge we have of such measures, just as in the case of the house we can avoid the use of inflammable material and contents when unburnable materials can be used economically and efficiently.

Secondary control is another matter. Dental disease can be detected in its early stages by skilled dental examination coupled with such aids as X-rays and transillumination. We can apply our remedies where they will have their greatest value, and the practice of eternal vigilance on the part of dentists with the co-operation of the patient will go far to ensuring that no teeth will be lost from disease.

Prejudices Must be Broken Down

We are thus inevitably led to the conclusion that dental care must be commenced early in life, as soon as disease makes its first appearance, and the success or otherwise of our programme will be largely conditioned by the adequacy and excellence of the service we provide for the younger end of the population. The eternal truth of Emerson's dictum that when anyone has mastered the ability to do anything well "the world will beat a path to his door," forces us to realise that the best way to stimulate an appreciation and demand for dental service is to provide a service, the efficiency, scope and status of which is of the highest order. The dental care which has been offered in the past and which, in most parts of the country, is offered to-day to the pre-school and school population is gravely handicapped by inadequate numbers of personnel and by inadequate facilities in the way of clinics and equipment. The commonplace expression of the parent who refuses dental treatment of her child at the hands of a School Dental Officer that she will take him or her to a 'proper dentist' is an indication that in the minds of uninformed people the service is regarded as something inferior to that of the private practitioner. This prejudice must be broken down by making it completely undeserved before we can hope to get anywhere. The facilities offered by the public dental services must be comparable in every respect with those offered by a high-class private practice. This is the first essential to success, and it is clear that the main educative effort and stimulus required to effect this must be directed to the powers that be, who are responsible for the service.

Secondary to the establishment of an adequate and efficient service capable

of delivering the necessary goods, much closer collaboration should be aimed at between the dental health services and educational and medical programmes. Any organisation which comes into direct contact with the people, particularly the younger end of the population, should be educated and informed in matters of dental health so that they can become potential missionaries in the cause.

Dental Education

If the programme I have outlined for the control of dental disease be accepted, and any other approach would appear to be financially unmanageable, uneconomic and scientifically indefensible, it follows that our greatest educative efforts must be directed to the younger end of the population. Dental inspection and treatment should be regarded as an integral and necessary part of our educational system and form part of the routine of school life. The child might well be introduced quite early in his nature study lessons to the interesting story of the evolution and specialisation of tooth forms in the animal world, and thereby the transition from the general interest in teeth through the attractive medium of animals could by an easy and pleasant process pass to an interest in the teeth of mankind and his or her own teeth. This is one of the many ways by which dental health education could be integrated with other departments of knowledge, and it is the writer's firm conviction that such an approach to our problems in all forms of health education, dental or otherwise, has been somewhat neglected and, if practised, could not fail to bear abundant fruit. The teaching profession, in its unique position and close relationship with the children under its care, might well be instructed to introduce and receive instruction as to the best methods of introducing this correlation of health teaching with many of the other subjects in the educational curriculum, thus killing two birds with one stone, or perhaps more aptly, reviving two corpses with the same elixir.

BIOGRAPHICAL NOTE

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HEALTH EDUCATION THROUGH SCHOOL BIOLOGY

By Hugh P. Ramage, M.A.
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A Warning

I must begin with a word of warning not to expect that the introduction and extension of school biology courses can ever be a complete panacea for the problems of health education. Life, whether healthy or not, is a complex art, not a simple business, and it involves emotional as well as intellectual factors. Indeed, it is our emotions which provide the driving force for our actions, our intellectual side merely providing a kind of steering gear to enable us to steer a safe course towards goals which we have decided more by feeling than by thought to be desirable, and even the most perfect steering gear will not get us to our destination unless it is handled by a qualified helmsman. Our aims and our habits are more easily caught than taught, and even our mental attitudes are often most effectively influenced by indirect methods and incidental remarks associated with the emotional aspects of the personal relationships between teacher and taught.

Education for healthy life therefore requires the effective co-operation of every kind of influence which can be brought to bear on the person being educated, and those influences will, from the point of view of that person, do their most effective work by acting unobtrusively. This must especially be the case in the earlier stages of childhood, when healthy habits must be formed without its being possible to explain the biological reasons for them, simply because the child's mind is not yet mature enough to understand these reasons.

Some Possibilities

With the foregoing warning in mind, we may now begin to consider what contributions school biology really can make to health education. The value of such courses necessarily depends primarily on the existence of right personal relationships between teacher and class. Humanly relevant aspects of biology, especially the more intimate ones, can only be dealt with properly by uninhibited teachers who have a rational outlook themselves and who have established a relationship with their pupils such that intimate matters can be discussed frankly and without embarrassment on either side. Again, it is essential to try to develop in our pupils a right personal attitude, e.g. towards sex, which will enable them to direct their impulses and employ their energies constructively and creatively. Mere factual information can be used for evil as much as for good, and is likely to be used for evil if it has been given in the wrong atmosphere.

Assuming that the right atmosphere exists, then I think the next most important consideration is that, if our biology courses are to be of real educational value, whether for health or other purposes, they must be made a study of living organisms in the fullest possible sense, not just a study of corpses or even of abstract vital functions. There is still much to be said in favour of a "type system," provided that the selected types are studied physiologically and even ecologically as well as morphologically. They must also be properly selected, and, for general educational purposes, this means making our school biology courses centre around a study of the human organism, for, after all, our pupils are themselves human. Non-human organisms must, of course, be studied as well, but, except for two special reasons, they should be selected and considered primarily for their relevance to ourselves, e.g. as providing food, clothing and other economic resources; as causing or transmitting diseases; or as providing corresponding or contrasting types of behaviour, social life, etc.

The two special reasons for choosing organisms not so relevant to ourselves, e.g. *Hydra*, are, first, to illustrate general biological principles not so well shown by the more humanly relevant organisms; secondly, to teach the salutary lesson that non-human organisms have their own 'right to live' and do not exist merely for our benefit. In this way our pupils can thus be led to a better understanding of their own place in the scheme of things, which should help to promote mental and spiritual health—a point surely worth including as an aspect of health education in the fullest sense. An evolutionary approach in our biology courses can also help health education in this sense, if teachers are careful to emphasise differences as well as resemblances between human and lower animal levels of life and to point out that if we wish to attain the quality of life possible only to humans we must behave like humans. If, for example, we eat like pigs, we shall be rewarded like pigs. Similarly, our sex life must be lived at the proper human level if it is to mean all that it can mean for us and our fellows, though I should add that this is not a level of such extreme asceticism as some people assert.

Direct Health Teaching

During a course of human anatomy and physiology, several occasions occur on which a teacher can make specific points which concern health education in the narrower sense. For example, when discussing the skeletal and muscular system, we may refer to posture, footwear and physical exercise, making contact thus with the physical education in the school. In considering the circulatory system we may appropriately discuss haemorrhage and its control by first-aid treatment, also the defensive functions of the blood. Under respiration, we may explain the value of breathing through the nose and the methods of artificial respiration by which people may be

revived. When considering perspiration as an excretory and temperature-controlling mechanism we may appropriately discuss washing and also clothing. Points such as these are, in my opinion, much better dealt with incidentally in a physiology course than obtrusively by a direct course of hygiene. Food requirements and the sources and preparation of food will come up naturally when we discuss feeding and digestion, and so will care of the teeth, whose good preservation may well be considered when, in another part of the biology course, we are studying bacteria and fungi.

A properly educational biology course will include a section on disease and its prevention and cure. We must consider diseases due to lack of balance in the nervous or endocrine systems and deficiency diseases due to shortage of vitamins in our diet, as well as diseases due to infection by some kinds of bacteria, fungi, protozoa, viruses and parasitic worms. Insects and other vectors of disease must also receive attention as well as the more direct modes of infection. It will be better, too, to refer to venereal diseases as part of this section than to make it a matter for separate and special consideration.

Heredity is another aspect of biology which is relevant to health education, and a course of heredity should therefore be included in any biology course which is to contribute properly to the general process of health education, which is more comprehensive than mere health instruction. In the same way, religious education is more comprehensive than religious instruction, and sex education than sex instruction.

The Uniqueness of Man

A proper biology course must include some ecology, for organisms can only be studied adequately in relation to their environment. Such a matter can help in health education, for we too must be considered in relation to our environment if the conditions for healthy life are to be fully appreciated. It is useless, however, to hope that a study of plant and animal ecology will help much in this direction unless we go on to study the distinctly different relations between humans and their environment. Our way of life involves the production of an artificial environment such as no plant or animal comes across, except those which share our environment with us.

Yet another contribution which biology teaching can make to health education depends on our emphasising that *Homo sapiens* is a most variable species and that, more than with most other species, ideas gleaned from a general study of the human organism must be duly modified to allow for individual peculiarities. Again, we do not merely differ from one another, but we, and for that matter other individual organisms, are not static affairs. We are everchanging products of a lifelong reaction with our environment, a reaction starting at conception and not ending till death. Our pupils should be led to realise this dynamic nature of organisms, for they may then come to realise that some of the troubles they experience are, or should be, only

transitory phases of development towards full maturity and will normally be 'grown out of.' They—*and we teachers*—should also learn to look at people in the light of the environment in which *they* have developed and the stage of development *they* have reached, remembering that the rate of development varies greatly with different people and that the number of years which have elapsed since birth is not a completely reliable guide to a person's biological or psychological age. Relative rates of physical, mental and spiritual development also vary between different people. If such matters were better and more widely understood and accepted, human relations might well be more healthy and harmonious. Recognition of other hereditary differences should also help here.

Importance of Grading

Naturally our teaching must suit the stage of mental development reached by our pupils, for if we try to put over ideas which are beyond their grasp, they will fail to derive full benefit from our teaching. School conditions sometimes handicap us here, for it may be necessary to deal with topics at a particular pupil age which would be better dealt with when the pupils are younger or older. If we cannot change the conditions, we must be all the more ready to make the most of what we have, and so, although health education should not be obtrusive from the point of view of the pupils, we teachers must be very much 'on the spot' if our biology courses are to be as fully effective as possible. Since example is so often better than precept, we must make sure that we ourselves are worthy examples of healthy living and our knowledge of health matters must be great enough and sufficiently readily available for us to deal easily and naturally with the questions which come from any live class. For example, problems of drugs and stimulants often crop up, and I find I am asked so many medical questions that I have invested in a large two-volume medical encyclopaedia and have also devoted a section of the biology library to medical subjects. We must, of course, discourage any signs of morbidity which may begin to develop about medical matters, but that can be done by ensuring that a healthy atmosphere is present when such matters are raised.

Although I must have omitted to mention several other ways in which school biology courses can contribute to the general process of health education, I hope I have said sufficient to set readers thinking along the right lines. If so, they will probably think out further possible contributions for themselves. After all, health education is in its infancy and it can only be helped towards maturity if many people co-operate in the great adventure—the effort to help humanity to live more healthily and happily and so to play its part in the scheme of things more adequately than it has done so far.

CONTACT AND INSECT-BORNE INFECTIONS

V. THE BIOLOGY OF INFECTION

By Robert Cruickshank, M.D., M.R.C.P., D.P.H.

In the preceding articles it has been shown that the majority of infections encountered in this country are related to the inhalation of infected air or the ingestion of contaminated food. There is, however a variety of other infections not so acquired and these may be grouped as (1) contact and (2) insect-borne infections. The first of these groups includes the infections, spread by direct contact between two individuals, such as the venereal diseases and some skin diseases; infections spread indirectly (*mediate* infection) by contaminated fingers, or inanimate objects, often called fomites, such as toys, books, clothing, surgical instruments, baths, etc.; and infections by spore-bearing organisms present in the soil.

Contact Infection

Venereal diseases. There are five known venereal diseases, i.e. infections spread by sexual intercourse, of which the two most important are syphilis and gonorrhœa. Gonorrhœa is a local infection of the lining membrane of the genital tract characterised by a purulent discharge which appears within a few days of exposure to the risk of infection. It is a highly infectious disease and its incidence is about seven times that of syphilis. If not treated promptly a chronic infection with unfortunate sequelæ such as sterility supervenes, and the patient may continue to be infectious for many years. The primary sore or chancre of syphilis, easily seen in the male, but often undetected in the female, generally develops about 3 to 4 weeks after exposure, and if untreated is followed by a generalised secondary infection with a rash as the outstanding feature. The late manifestations of syphilis include irreparable damage to the heart and blood vessels and to the brain and spinal cord. Syphilitic infection acquired by a woman at conception usually has no obvious outward signs, and only a blood test during pregnancy will reveal its presence. The organisms causing syphilis and gonorrhœa die very quickly outside the human body and there is no other reservoir, so that from a bacteriological viewpoint these infections could be very easily eradicated. In practice, of course, the problem of their eradication is about as soluble as that of the prevention of war. The recent publicity given to these infections will, no doubt, help the lay public to regard them in the same light as does the medical man; that is, they are infectious diseases like diphtheria or scarlet fever to be controlled and treated as urgently as possible both for the sake of the affected person and of the community. Their greater prevalence during wars is closely associated with the abnormal

environment in which young men and women find themselves, together with a general lowering of moral standards which the stress of war seems to bring in its train. Both infections are very amenable to *early* treatment and it is the duty of every sufferer to seek medical help at the earliest signs of infection.

Certain skin diseases, e.g. scabies due to a tiny mite or acarus, and impetigo due to a streptococcus or staphylococcus, are also spread principally by close contact, as happens when two children in a family sleep together. Lousiness too, as most teachers know, is largely a family affair, and lousiness leads to secondary skin infections. Only a high standard of personal cleanliness will eliminate these infections, but this is not always easy to attain or maintain in slum dwellings where washing and other facilities are poorly provided.

Mediate Infection

The clothing of an infected person, particularly the handkerchief and pockets, and the books, pencils, toys, etc., which he handles, readily become contaminated and may be the means of spreading disease to considerable distance. Thus, smallpox has been imported from abroad in cotton bales; anthrax in hides, fertilisers and shaving brushes; foot-and-mouth disease in frozen meat. In everyday life the hand of the doctor or nurse may transfer infection if he or she does not observe the customary precaution of washing after handling infective material. In hospital, toys are readily infected; each child should have its own and all toys should be washable. Diphtheria has more than once spread round a classroom by the communal use of pencils, and infection has been carried round a ward full of war wounds by the instruments or hands of a careless dresser. Those who use public libraries are sometimes worried about the risk of infection from books. The bacillus of tuberculosis is perhaps the organism most likely to contaminate books, but experiments have shown that this organism does not survive a month even when liberally smeared within the leaves of a book. Silver and copper coins, being bactericidal, are unlikely to convey infection. Only banknotes could be called 'filthy lucre,' but bank clerks do not lick their fingers when counting notes. Wash-hand basins in public and private lavatories are liable to become contaminated and a supply of a safe antiseptic like 'Cetavalon' should always be available for the cleansing of these basins.

Infection from Soil

Bacteria which form spores (a resistant shell encasing the vital part of the organism) will remain alive in soil for many years. The principal pathogenic members of this heterogeneous group are the anaerobic bacilli responsible for tetanus and gas gangrene. These bacteria live in the intestines of many animals and are, therefore, to be found in greatest numbers in well-manured

soils. Thus the gardener who stabs his foot with a fork is particularly liable to develop tetanus and, in times of war, both tetanus and gas gangrene have been responsible for many deaths among soldiers whose wounds are usually contaminated with soil or soiled clothing. Fortunately our troops are now protected against tetanus by the injection of tetanus toxoid in the same manner as diphtheria is prevented, and tetanus has been a very rare infection in the present war. For civilians who may be the victims of enemy action or who suffer injury where the wound is likely to be contaminated with dirt, an injection of tetanus antitoxin will give temporary protection. Similarly, gas gangrene can be prevented by the use of a specific antitoxin in combination with surgical excision of any dead or devitalised tissue.

Insect-borne Infections

Apart from the role which the house-fly may play in the transfer of intestinal infections, insect-borne diseases are now practically unknown in temperate climates like ours, although malaria, typhus and plague were all at one time widespread in England and might return with any breakdown of our civilisation. All of them occur in different parts of the Empire, and we may, therefore, use these three diseases to illustrate some of the ways in which infection may be spread from animals to man. It is important to note as part of the host-parasite relationship that in all insect-borne infections the parasite is present at some time in the circulating blood of the human host ready to be transferred by the appropriate carrier to a fresh victim.

Malaria. Malaria is the most widespread and crippling of all infectious diseases. It is the great slayer and devitaliser of tropical races. In India alone about 100 million people are infected, and about 2 million die of the disease every year. If this infection were eliminated from the globe the sociological and economic consequences due to rapidly increasing populations of the coloured races would be appalling. It might indeed be argued that the dominant races owe their position to the absence of malaria.

The infection is caused by three different kinds of protozoa which produce different clinical syndromes known as quartan, benign tertian, and malignant tertian malaria. These protozoa have a complicated life-history, part of it spent in the human host and part in the *Anopheles* mosquito. When an infected mosquito bites a human, it inoculates a few of the tiny parasites, each of which enters a red blood cell. It feeds and multiplies there until the cell breaks down and the young parasites are free to enter fresh cells. This cycle, which occurs every two to three days, is repeated over and over again and, when a large number of red cells are infected, the simultaneous liberation of parasites with their poisonous products causes fever and a fit of shivering. Besides this asexual cycle, the parasite also produces sexually differentiated forms which unite and multiply in the gut of the mosquito after it has bitten the human carrier. Thus, in dealing with malaria we try

either to destroy the responsible mosquito or to protect the human host against the infection it carries. Unfortunately the habits of the *Anopheles* family of mosquito vary considerably and in any malarial area it is necessary to study these habits before instituting methods of control. Stagnant water is a happy hunting ground for most species, so that draining of swamps is one of the main methods of attack. Or the surfaces of pools, lakes, etc., may be sprayed with oil to kill the larvæ which, needing oxygen, must live on the surface of the water. Man attempts to protect himself by the use of fine-mesh netting over doors and windows and by anti-mosquito sleeping bags and nets, but, as it is virtually impossible to keep the mosquito out, he has to supplement this protection by the prophylactic use of 'suppressive' drugs like quinine and atebrin which prevent the development of the protozoan in his blood.

*Typhus.** Typhus is spread by the louse, and outbreaks of the disease are always closely associated with famine, overcrowding and movement of populations. Thus it is a common aftermath of war, when these three components often come together. In Poland and Russia between 1919 and 1922, 12 millions of the population were affected with typhus and 3 to 4 millions died. The recent outbreak in Naples shows how readily an epidemic may arise in a civilian community living under the stress of war. The causal agent is a minute rod called *Rickettsia*, midway in size between the bacteria and the viruses. It multiplies in the louse intestine and passes out with the fæces. When the person infested with lice scratches he allows the Rickettsia to get through the skin into the tissues. Thus infected, he in turn infects fresh lice feeding on his blood, and they, being readily transferred from person to person in the overcrowded conditions, pass on the infection. It is small consolation to know that the infected louse also suffers and dies, but it suggests that the louse is a relatively recent host of the typhus germ.

In certain countries (e.g. Mexico) rats are chronically infected with Rickettsia and the disease is transmitted from rat to man by the rat-flea, which remains unaffected, so that these insects are more likely to be the natural reservoir of the Rickettsia. The control of a typhus epidemic depends on the relief of famine and wholesale delousing in the stricken community, together with a strict system of quarantine to prevent louse-infested persons from carrying disease outside the affected area.

Plague. Plague, one of the great pestilences of ancient days and the cause of the Black Death of 1348 and the Great Plague in 1665, is a natural disease of black rats. The black rat invaded Europe in the 13th century, and brought with it a species of flea that was ready to feed on man as well as on rat. These black rats made their homes in ships, and plague was carried from one port to another by the rat-infested ships. When the plague bacillus

* The biography of typhus is told by Zinsser in his fascinating book, *Rats, Lice and History*. Routledge. 5th edn. 1943.

passes from rat to flea it multiplies in the flea's stomach and, when that insect attacks a human host, the bacteria are regurgitated and pass into the tissues through the puncture-wound. They are carried to the nearest lymph glands which become greatly enlarged (= bubo) so that the usual form of the disease is known as bubonic plague. The bacteria also invade the blood stream, reach the lungs, and may be spread from one person to another directly by exhaled droplets. This pneumonic plague is almost invariably fatal and is one of the rare examples of a disease acquired from an animal source which can spread directly from man to man. The control of plague depends on the extermination of the natural host, the black rat. At every port, therefore, precautions are taken to prevent ship-rats from reaching shore or gaining access to supplies of food on the water-front. The ships are fumigated, anti-rat contraptions are put on the ship's cables, and warehouses are made as rat-proof as possible. A natural enemy, the brown sewer rat, which is a much less dangerous transmitter of plague, has largely ousted the black rat from Europe in the past two centuries, and this may be one of the reasons why plague is now unknown in this country.

BIOGRAPHICAL NOTES

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NEW TACTICS AGAINST THE HEAD LOUSE

By J. R. Busvine, B.Sc., Ph.D.

A common-sense argument for 'pure' science is that one can never forecast how or when scientific knowledge will become fruitful in practice. Even the results of applied research are sometimes turned to advantage in a somewhat different way from that originally intended. The development of Lethane hair oil as a treatment for head lice provides an example of this.

Early in the war a small number of English scientists decided that conditions of warfare might provide an opportunity for a recrudescence of that dangerous and loathsome pest the body louse. Actually, the excellent sanitary arrangements of the British armies have so far been adequate to prevent large outbreaks of body lice and the attendant diseases, typhus and trench fever. The war is not over, and operations in various parts of Europe may involve a risk of infestation and disease. But, as a result of scientific research, there are measures available which will give unique protection to the allied troops.

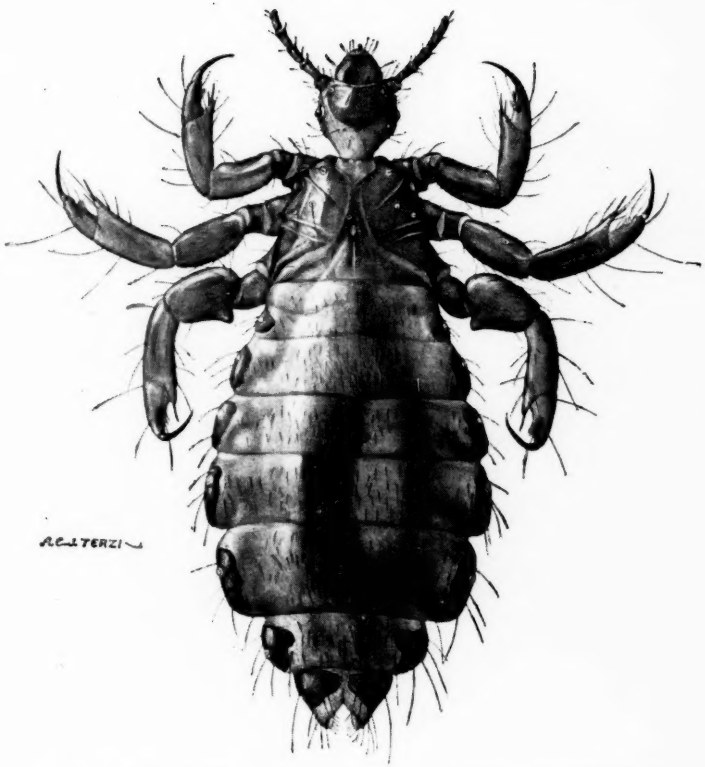
In the meantime, one of the discoveries made in the course of these investigations finds a use in a field urgently requiring attention. This is the head-louse infestation among our civil population.

Extent of the Infestation

The existence of a considerable head-louse problem among the inhabitants of large cities is not a war-time development. An examination of pre-war records of patients received into fever hospitals showed that in ten industrial cities (including all those cities in England with over 400,000 inhabitants) the infestation with head-lice is very high. Among children under five years, practically 50 per cent are infested. School age boys are not so verminous, but girls are nearly as frequently infested up to the age of fourteen.

In rural districts the level of infestation was very much lower. Four counties in the south of England provided an average of less than 5 per cent infested.

This state of affairs has been brought to the notice of some of us by the general mobilisation caused by the war. The condition of many children evacuated to the country is well known and quite a high proportion of girls and young women entering the forces or factories were found to be infested at medical examinations. In general, national service has resulted in many young people living in a more hygienic environment than before in contrast with the soldiers of the last war who experienced the discomforts of lice, for the first time, in the army.



THE BODY LOUSE, *Pediculus humanus corporis.* de Geer. × 30.

With acknowledgements to the Director of the British Museum (Natural History). Reprint from the pamphlet on lice by Dr. J. Smart.

Inherent Difficulties

The eradication of head-lice from among people living at home presents a far more intractable problem than maintenance of clean heads in the services. The whole difficulty can be summed up in one word: reinfestation. The common focus of infestation is the family group. In a recent American drive against pediculosis, the home contacts of infested school children were urged to come for inspection and treatment. Nearly 50 per cent of them came and of these 80 per cent were found to be lousy. This illustrates the situation with which school medical authorities and others have had to contend for many years. The school-age child can be examined regularly and treated; but the trouble is seldom permanently cured because the child becomes reinfested at home soon after treatment.

To eradicate the pest from a household it has been necessary to disinfest all members simultaneously. Apart from the difficulty of arranging this, it can easily be understood how strongly a family will resent being compelled to go in a body to the cleansing station: they would never live down the neighbour's jibes. In addition to this, the standard methods of treatment are either long and tedious, like the paraffin cap or the 'Sacker' comb, or else self-advertising like the strongly smelling sassafrass oil.

What is required is a rapid, not unpleasant treatment with a high degree of efficiency which can be applied by an unskilled person and gives a degree of protection from reinfestation. All these qualities are possessed by the Lethane preparation, which is very similar to an ordinary hair oil and is applied in the same way (though rather more thoroughly). This treatment has been tested under supervision on over 10,000 heads with satisfactory results and, now that it has been incorporated in the National War Formulary, one can say that it has passed the experimental stage.*

Administering the New Remedy

The Lethane hair oil is a new and useful weapon for attacking the head louse, but there is still the question of how best to encourage its use where it is needed. Head lice present quite a formidable public health problem. The Medical Officer of Health or the School Medical Officer can, under the Scabies Order, compel a verminous person to attend for disinfestation and also have powers over inhabitants of infested homes. But it is not always desirable to rely upon powers of compulsion; in many cases persuasion is much more effective in securing co-operation from the affected people. This is where the Health Visitor, the Social Worker and the Probation Officer can help. These people, who actually visit the infested homes, have a considerable insight into the difficulties of the poorer families. They can

* See the Ministry of Health's "Memorandum on Control of the Head Louse," Memo. 230A/Med. (H.M.S.O., 1943.)

help by explaining how easily the whole family can get rid of the chronic trouble of 'dirty heads.'

In approaching the subject, considerable tact is desirable, because even the most verminous tramp is inclined to resent the accusation of being lousy. (The most heavily infested man of many I examined, from whose clothes we obtained about 10,000 body lice, said he thought he had picked them up by sleeping in an infested place the previous night!)

One way of inducing people to use the Lethane Hair Oil is to recommend it as a 'hair tonic' with the implication that the lice will go when the health of the head improves. Although this circumlocution is said to be successful, one hesitates to recommend anything which disguises the real nature of lice, and encourages myths and fantasies such as the idea of 'breeders.' A tactful presentation of the true facts should be possible.

Having persuaded a family to use the insecticide, the visitor should demonstrate its use (say, on a pre-school age child) and leave a bottle with the mother to apply to other members of the family and herself. Tell her to keep the bottle away from the baby and not to use it on animals. After a week a second application will do no harm; wash the hair before applying the oil again.

Incidentally the Lethane oil is a valuable protection for the social worker herself when risks of infestation are high.

General Hair Hygiene

There may be some readers who are unconsciously paraphrasing Belloc's rhyme:

> "How idiotic. Can Quinine
> Replace Cold Baths and Sound Hygiene?"

But, of course, Lethane oil no more *replaces* sound hygiene than does Quinine. The relation of the insecticide to general cleanliness can be illustrated by a military metaphor. Care of the hair is still, as it always has been, the first line of defence. If this is properly organised it should be adequate to keep the lice from invading the head. But should they establish themselves, more drastic measures may be required to evict them and protect the hair from repeated invasions from the heads of relatives. This is where the Lethane oil is valuable. After it has been successfully used, the family concerned should be urged to build up new defences by cultivating sound hygienic measures.

These are the tactics by which we can drive out from the midst of our cities a pernicious enemy of health and comfort. Let us hope that they will be vigorously pursued in the drive for a better civilisation which we hope to create after the war.

CAMPAIGNING FOR HEALTH

By J. M. Young, M.C., M.B., Ch.B., D.P.H., F.R.F.P. & S.
Senior Assistant Medical Officer, City of Glasgow

Some time ago six schools in Glasgow were selected in which to open a special campaign for the promotion of hygiene in the school. Each of these schools had an experienced teacher as a Senior Woman Assistant who, in addition to occasional teaching duties, supervised the social work of the school such as milk-in-school schemes, school dinners, supply of boots and clothing in necessitous cases, advice to older girls, supervision of offices, etc. Further, an appreciable amount of work in connection with the school medical service was taken over by her, including co-operation in all directions with the visiting Medical Officer and Nurse and with the nurse supervising cleanliness, should one be allocated to that particular school. The unit was completed by the services of one woman attendant who carries out the cleanliness treatment of the children. Simple accommodation is provided, ensuring privacy for treatment and a waiting-room for mothers. Equipment is also simple, comprising Derbac combs, dressing combs, 50 per cent Lethane, towels, rubber gloves, overalls, mirrors, 'Health and Cleanliness' posters, tables, high chairs, cupboards, etc. Before entering on their duties, both Senior Woman Assistants and Welfare Attendants had a practical course of instruction at schools and in clinics, the conditions demonstrated being head and body vermin, scabies, impetigo contagiosa, and, generally speaking, the common abnormalities affecting school children.

This 'Hygiene in School' scheme, while it contemplated a much more extensive range of activities than attention to verminous conditions in children, nevertheless had this in view as a major part of its efforts. Many years of trial by standard methods, while reducing the degree of infestation in school children, still left a regrettably large percentage of the school population infested; and where, as in recent years, school children were cleansed at First Aid Posts, of which some twenty were established as Cleansing Centres, only too often did the verminous condition of other members of the household result in the rapid re-infestation of the school child. A minority of irresponsible and careless parents also cared little about the verminous heads of the children and, lacking power to take such recalcitrant cases forthwith to have their hair cropped, recourse had to be made to legal proceedings which, cumbersome and slow in the main, brought about little improvement. It was hoped that the establishment of a unit in schools to which mothers were accustomed to go frequently for discussion

of their children's affairs would establish more satisfactory relations with parents than could be obtained by the intermittent visits of Medical Officers and Cleanliness Nurses to schools and homes.

In addition, the teacher in charge of the 'hygiene unit' was one with a wide range of teaching experience and a position of authority in the school. A parent, one would expect, would be likely to carry out any instructions given in regard to a child's cleanliness when such instructions and advice were offered by a teacher who would command the respect of the mother. Indeed, the influence of the teacher would probably, in no small measure, be reinforced by the child himself, by whom instructions from the teacher are regarded as matters of moment.

Preserving the Parent's Responsibility

The aim of the cleansing scheme was not to transfer responsibility for the cleanliness of the child from the mother to the school—rather the reverse. Mothers were invited to come to the school to discuss their children's health and cleanliness, and advice was given as to how the mother should set about improving any particular unsatisfactory feature in her child's condition. Where difficulties, such as illness, etc., were present, however, help was immediately forthcoming, and after the parent had signed a form consenting to treatment, verminous heads were treated by 50 per cent Lethane which proved satisfactory as an insecticide. Parents were told to buy Derbac or Sacker steel combs and encouraged to purchase Lethane Brilliantine from their local chemist in an endeavour to clear up the heads of other members of the household, since lousiness, like scabies, is a domestic infection involving other members of the family than the school child.

At the outset of these schemes repercussions were immediate. Some parents were inclined to be very disagreeable, but when they discovered that the scheme was one which set out to try to help them, little trouble was encountered after the first month or two. The news of the new departure in school hygiene spread rapidly in each locality, and home supervision began to improve. Where, in spite of all efforts, children remained persistently verminous, notices to cleanse within 24 hours were served and were followed by cleansing in school and by legal action in cases not cleansed or allowed to become re-infested after school cleansing.

The Scheme at Work

The Senior Woman Assistant visits all classes in the school above the Infant Room in rotation and gives addresses, of some 15 minutes' duration, on hygiene. These deal with various aspects of hygiene such as cleanliness of the skin, care of the teeth, care of the hair, neatness and tidiness of clothing, etc. Attempts were successfully made to gives these hygiene talks an in-

formative as well as a general health background. In the care of footgear, for example, instruction was given in the treatment of hides, the method of production of leather, and the manufacture of boots and shoes. Similar information was given in connection with clothing, etc.

The Senior Woman Assistants were granted written authority by the Medical Officer of Health to examine children in the schools in regard to cleanliness. Registers of cleanliness were kept and entries made at each examination. Re-examinations were made, of course, of children whose condition was unsatisfactory and, where required, daily supervision was carried on for a considerable period. The Senior Woman Assistants developed a system of granting marks for cleanliness, and this competitive element was found to have a stimulating effect.

The results of this scheme were soon reflected in the improved appearance and cleanliness of the children in schools where the scheme was in operation. Medical Officers, Attendance Officers, and Nurses visiting the schools commented favourably on the improved appearance of the children.

The Results to Date

This hygiene scheme is now operating in seventeen schools where unsatisfactory reports as to cleanliness were received from Medical Officers. The effects of the scheme to date are shown by the returns for 1940–43 from the first six schools. Three examinations were made by the Senior Woman Assistants at each of these schools each year and note was taken of the numbers of children who were 'clean and well-cared-for,' which meant that there were no nits or vermin on the hair or body, and that the children were clean and well-cared-for in other respects. The percentage of 'clean and well-cared-for' children rose in the case of boys from 55 per cent at the first examination in 1940 to 90 per cent at the last examination in 1943, and in the case of girls from 29 per cent at the first examination in 1940 to 70 per cent at the last examination in 1943.

It is noteworthy that the condition of the children improved during each session and lapsed during the vacations, but reached the best percentages at both the second and third inspections in the third year of the experiment at all six schools. There is no doubt, therefore, that this is a scheme of much promise and that the results should be even better when the Senior Woman Assistants are free to devote more of their time to the work.

This scheme could not have been developed and operated without the goodwill and assistance of the Director of Education, Dr. R. M. Allardyce, who has been most helpful in the selection of staff and in the establishment of these hygiene units in the schools. Head teachers and class teachers in the schools have willingly co-operated, and it is felt that the higher standard of cleanliness and hygiene in school children which could be attained would amply repay the cost of an expansion of the scheme.

HEALTH TEACHING IN THE TROPICS

By E. Cochrane, M.D., D.P.H.
Senior Medical Officer, Grenada

The School Premises

To anyone who is familiar with the reasonably high standard of school hygiene in many of the British Schools the first inspection of a school in a rural area of the tropics is a somewhat depressing experience. As a rule the boys and girls are packed into one schoolroom and seated, for the most part, on low backless benches; such desks as there are being of an antiquated type and of multiple but limited capacity, so that the unfortunate ones at either end spend more time in retaining a precarious seat than in imbibing knowledge. In the centre of each class a harassed teacher is endeavouring to make his or her voice heard above the babel of voices. In one corner of the room a heap of caps and hats in various stages of dirt and decay are piled up in disorder on the floor. Sanitation is represented by a few earth closets of the deep pit type which have to compete with the nearest patch of bush —not always successfully, as the latter is distinctly less odiferous. Washing facilities, towels, soap, etc., are non-existent; while the drinking water is obtained from a nearby standpipe or from an old-fashioned filter served by the communal drinking cup.

The newcomer's first impulse is to put all this right, but his hopes are soon dashed by the realisation of the fact that the finances of the school simply do not permit of betterment. Until recently there was little prospect of effecting any improvement in the schools of the poorer Colonies. The bare framework of education made such great demands upon the colonial budgets that any attempt to attain even a moderately decent standard of school hygiene was doomed to failure from the outset. The result has been that many Health Officers have been driven to look upon the problem as insoluble, and that attitude has been reflected in the lack of interest shown by subordinate officers of the Sanitary Departments and by the teachers themselves.

Future Prospects

Fortunately, with the coming into effect of the Colonial Development and Welfare Act, there is every prospect of financial aid being forthcoming on a generous scale. As far as the West Indies are concerned a great deal of practical planning has been accomplished already by the Comptroller and his staff of Educational and Medical Advisers. War conditions must, inevitably, slow down progress owing to curtailment of staff and lack of equipment. It is not enough, however, to wait until the schemes become realities; the time-lag between planning and accomplishment can be usefully

employed in preparing the ground for the work ahead. When assistance does become available its advantages will be discounted, to a greater or lesser extent, if the elementary work of inculcating hygiene ideas in the minds of the children has received inadequate attention.

While the actual teaching of hygiene has not been intentionally neglected, it has been to a large extent ineffective, because of the habit of regarding it as just another school lesson to be learned by rote without any practical application to the home conditions of the children. On numerous occasions, while doing field work in connection with anti-malarial measures, I have shown to school children, whose natural curiosity has led them to watch operations, specimen tubes containing anopeline larvae caught in the waterways in close proximity to their homes. On being questioned as to the nature of these specimens the brightest might volunteer the information that these were 'wrigglers,' but beyond that they rarely have any idea as to the effect the final development of these larvae will have upon their own health. It is common to find that many of them have not grasped the idea that the 'wriggler' is merely a stage in the life cycle of the mosquito. This ignorance prevails despite the fact that, in the senior classes, the Standard Readers contain all the requisite information.

From time to time Health Officers give talks in the schools, but the average child fails to benefit sufficiently from them since they are unaccompanied by illustrations, apart from the usual entomological specimens and a few technical diagrams or charts, the meaning of which many children are unable to grasp. However, unless Health Departments institute and supervise some form of health education in schools, very little real progress can be made. The immediate problem that has to be faced is the augmentation of health teaching in schools without the creation of extra staff or the purchase of expensive equipment. Apparatus of some kind for teaching by visual means is essential; past experience has shown that talks alone will not retain the interest of the children. The answer is the equipping of the subordinate sanitary staff with demonstration material sufficiently attractive to form a background for health talks. Besides being attractive such equipment must be simple, cheap and portable.

The only thing that fulfills all these requirements is the coloured poster designed by someone with a knowledge of local conditions and customs. Recently after consultation with the Medical and Educational Advisers to the Comptroller, West Indies Development and Welfare, an application was made for the gift of £50 for the purposes of health education in the schools of Grenada. The money is being expended on the production of a series of posters executed in crayon, and so far the following subjects have been covered—Nutrition, Hookworm, Flies. A number of school talks using the appropriate series of posters has been given and it is possible to state with certainty that the pictorial aids have been most effective.

Pictorial Representation

In the tropics the majority of preventable diseases present a far wider scope for pictorial presentation than is the case in temperate-climate countries. It is much easier to convey the idea of danger through reproduction of the parasite or its carrier (for example in connection with malaria, filaria, yellow fever and yaws, to quote but a few tropical diseases), than would be the case in cold countries where such ailments as infantile paralysis, rheumatic fever, diphtheria or scarlet fever defy our attempts to reproduce the salient points in pictorial form. The protozoal infections and the parasitic infestations which form so large a part of our disease records are easily represented in diagrammatic form. To the scientifically minded will come the temptation to render everything in accurate form. That may be a mistake. Considerable licence may and should be taken in order to accentuate the practical application without any undue attempt at a faithful reproduction of the actual details. It is of no interest to the children, for instance, that *Ancylostoma duodenale* has a buccal armature consisting of teeth while that of the other common hookworm, *Necator americanus*, has cutting plates only. All that matters to them is that these worms, tiny though they are, can bore their way through the human skin.

As an illustration of the necessity of avoiding confusion in the child mind by the use of technical terms, one may quote the process of the infection of the body by the hookworm. The average school child in the tropics is completely ignorant of human anatomy, and it is a waste of time to try and impart any knowledge based on anatomical charts. To show the children an atlas of the human body is just like directing an uneducated man on his way by giving him a map to read. In both cases the picture in front of them carries no meaning. On the other hand, the names of the various anatomical parts are not unfamiliar to the child, since his elders like others all over the world are just as fond of discussing what the doctor said. The appropriate poster in the hookworm series (there are eight altogether), portrays the outline of the trunk enclosing a short flight of stairs up which highly coloured specimens of hookworm are seen making their way; each separate stair being labelled in ascending order, foot—leg—and so on to intestine. At one side of the trunk a symbolic tunnel is shown out of which are dropping a number of hookworm eggs attached to parachutes—a topical touch which helps to rivet the child's attention without taking his mind off the main point, i.e. the pollution of the soil by promiscuous defaecation and the consequent infestation of the body. The other posters show various phases of the life cycle of the hookworm portrayed in the manner of the comic cartoon, with an occasional serious one thrown in to ensure that the importance of the subject is not under-emphasised. As the talk unfolds the appropriate poster is hung up and the whole series dealt with in fifteen to twenty minutes.

Personal Hygiene

While it is important to give the children some idea of the causes of these various tropical diseases we have another aim—to drive home the importance of personal hygiene. In most of the schools, as we have already seen, the opportunities for decent standards of personal cleanliness are lacking. Our object is to acquaint the child with the need for such measures despite present-day limitations, so that when facilities do become available the children will be prepared to take advantage of them. If the children learn why they should come to school with clean hands and washed bodies—in the small well-watered islands of the West Indies that is not difficult of achievement—the task of the teacher will be made easier when school sanitary facilities are improved. The usual method of telling them that dirt causes disease leaves little impression on their minds unless it is illustrated by familiar examples of prevalent diseases.

Some time ago we tried out the posters of the Health and Cleanliness Council and it was obvious that, excellent as they are for English audiences, they had little appeal amongst school children here. But the importance of bodily cleanliness and clean clothes, however ragged, can be made to tell during the course of a talk on yaws for example. A disease with which children in many tropical countries are only too familiar, and its spread from member to member of the family through dirty habits, unwashed clothes and fly-infested quarters, forms a useful illustration of the need for cleanliness. The necessity for cleanliness in the preparation and handling of food may be dealt with in the talks on dysentery. The danger of careless personal habits and the importance of the proper disposal of excreta is the main theme of the fly and hookworm poster series. Tidiness and cleanliness of the home surroundings may be stressed in the mosquito-borne diseases series. Thus the medicine of the maxims relating to personal hygiene is concealed in the practical application of the talks on diseases with which the children are familiar, and the whole process of imparting instruction is made much more interesting by the use of the gaily coloured poster.

At present the main disadvantage of the scheme is the impossibility of getting the hand-drawn poster reproduced; thus only the original series is available and the work of lecturing has to be done by one person alone. The M.O.H., even in a small tropical community, has too many duties to be able to devote more than a fraction of his time to health education, and the appointment of a special officer would be a serious drain on a scanty budget. The best method would be wholesale reproduction of the various poster series so that a team of Health Visitors and Sanitary Inspectors, after a preliminary training, could be furnished with complete sets and be made responsible for regular and frequent talks in the schools of their area. A check inspection by the M.O.H. of the schools, with questions to the children on a given series, would soon reveal which of the sanitary staff were doing well and which were failing to

get their health message across. It is hoped that in the post-war years such reproduction will be easily and cheaply available. An exchange of views between those interested in the various Colonies might result in the production of posters which could be used throughout a common territorial area, the West Indies for example. This would naturally enable costs to be reduced very appreciably.

This does not mean that we consider the educational film is not of great importance; but the use of films involves not only the acquisition of expensive technical apparatus, but requires the services of a full-time officer to keep the apparatus in order and to operate it. Again, in rural areas where electricity is not available, motion films can only be shown if a travelling van is obtained. While the epidiascope and the film-slide lantern are useful and cheaper to acquire, even their use involves the services of a full-time officer, or, alternatively, the purchase of apparatus for each school. And a great deal more would have to be done to make the films or slides both intelligible and interesting to the rural school child. For the present the educational film is of more importance in urban schools.

ROMAN CATHOLICS AND SEX EDUCATION

The Central Council has for some time been fortunate in the co-operation it has received from individual Roman Catholic clergy and laymen, and the publication by the Catholic Archbishops and Bishops of England and Wales of their statement on sex education (*Westminster Cathedral Chronicle*, May 1944) was, therefore, particularly encouraging. Whilst naturally insisting on their Church's special views on sex, the statement agrees that "children should not be allowed to grow up in ignorance of the facts of life" and that "this instruction should be provided by the parents themselves." It also recognises that "unfortunately many parents lack the knowledge and power of expression necessary to give the information," and it therefore advises "that the parents themselves be encouraged to attend courses specially arranged for them in their own neighbourhood, so that they may be trained to educate their sons and daughters aright in matters of sex." Any help that the Central Council can give in this valuable work will be readily forthcoming.

THE ESTATE OF MAN

By K. E. Barlow, M.R.C.S., L.R.C.P.

What is Health Education?

Education in our schools is largely concerned with the acquisition of public knowledge. The use of the symbols of language on the one hand and the application of the standards of science on the other comprise a large part of the educational curriculum. Health nowadays is either public or personal. The public variety mainly concerns the control of infection within the social environment. It also purveys titivated foods for infants on a considerable scale, and inspects these infants and older children for faults. Personal health, as we conventionally conceive it, is the absence of organic disease and the unobtrusiveness of functional insufficiency.

When we speak of standards of education and standards of health, and still more when we put the two together and speak of standards of health education, we are referring to nothing more than a social fashion. We are discussing contemporary practice and its palliation. The matters with which we deal by such conventions are not necessarily the full count of the potential fields of education and of health. If a scientist or metaphysician were asked to define these potential fields he would be justified in stating that education is the bringing up of the new generation of a society into a way of life which both does justice to the cultural potentials of its people, and brings them to a just awareness of their situation within the universe. Health would then appear as the fully developed performance of persons, families, and societies in the light of their awareness of their situation.

The Background

Once some such definition has been set up, the sort of difficulty which faces the practitioner of health education becomes apparent. We at once see that we have as yet no adequate knowledge either of cultural potentials or of man's situation within the universe. Science is of limited assistance. Its essential achievement to date has been to discover the potentials of work (energy) and of materials suitable for working up. The background of all the activity, especially the industrial activity, which has resulted from this knowledge or work, is little explored; and such information as we have concerning it remains uncorrelated. Yet this background is precisely the field from which we must eventually derive our knowledge of man's potentials and our comprehensive insight into man's situation.

In the biological sciences we need to recognise not only their poor development, but also that such knowledge as we have has been reached under the dominating conceptions of work (energy). The order and regulation which is characteristic of life has stuck out from careful energetic

measurements and forced itself upon the biologist's attention almost against his will. Yet this order begins to appear more and more clearly as the very essence of the system of life.

Ordered performance, the self-regulation of human performance in intimate interadmixture with the setting in which the part of man is cast, constitute the flesh and bones of that way of life which it is the purpose of education to promote in the interests of health. But such performance is by no means a question either of social conduct or of intellectual ideas, although each of these may contribute. Man and his world is in a most intimate manner one flesh. The world is man's endowment and his performance arises out of, and if it is to continue must be, and remain, consonant with that world.

The food which builds his body affords the most obvious witness to this truth. But already, with the question of nutrition, we must ask how the bounty of nature is able to do man that great good which leads us to speak of Bounteous Mother Nature. The details of Nature's ordered performance are beginning to be made apparent to us. The intimate organisation of the soil depends upon the life which it carries. The life and death of plants, the excreta of animals and the multifarious activities of soil and other bacteria, all contribute to maintain soil structure and soil quality. They stand together integrated into a coherent balanced order, fluctuating and changing it is true, and yet ordered. Within this panorama we see that the physical matrix of life is such as will permit and further the characteristic performance of life. And there is a *quid pro quo*. The inorganic stuff of the soil is maintained in its characteristic distribution by its native flora and fauna. There is evidently room for considerable shift and change, but, taken by and large, the soil depends on its vegetation for its continuance just as much as the vegetation depends on the soil. Break up that interdependence and the soil is replaced by desert sand, and plant and beast are erased.

The Order of Nature

This vegetative order is the substructure of our society. Man's dependence upon it for his food is obvious. The educationist is becoming increasingly aware that a well-built body, depending in no small measure on an optimum diet and a proper system of exercise, is essential to any adequate system of education. One of the main cultural issues of this critical century concerns the means which we can devise of relating the activities of our society to this substructure. At present we appear to be in danger of forgetting the very existence of any such problem. This dietetic aspect of education is no more than a facet of a wider problem of how we will order our society, but every aspect of such ordering is affected by it.

If man is connected to the soil by his food, his main inroads upon the organisation of the soil derive less from this than from his economic activity.

It is the appetite of the machine for vegetable raw materials which makes the most inconsiderate demands upon the soil. In his exploitation of the new potentials of work, he has never yet considered his obligations towards the order of Nature which alone makes such potentials usable. In consequence his economic life is at present in no sense integrated with the order of Nature. At home it produces the hideous sprawl of our vast conglomerations of towns. Abroad its trading and marketing effects have largely contributed to soil erosion. Everywhere between the order of Nature and the format of industry there is tension, stress and fricton. If the life of society is not to stand in opposition to the life of the soil and be destructive of it, the principles of our social organisation must be made to partake of the principle of order which Nature displays. To that end these principles must be publicly known and man's social actions must be infused with such knowledge. Only on such terms can man enjoy the fruits and the bounty of his natural endowment.

If man's situation is of this kind, good living must include due recognition of it. And if education is to be a contribution to such good living, the educationist must accept it as his responsibility that the new generations whom he shapes be made alive to the responsibilities which their situation imposes upon them. But obviously he cannot do this until his culture as a whole publicly comprehends the nature of biological organisation. Knowledge of the natural order is cardinal to good education even as it is cardinal to good social living. Unhappily it is precisely knowledge of this natural order which we in this present scientific civilisation do not have. This is particularly well seen in the matter of the family. This is the primary unit of biological organisation within society. It is the family which is the organ appointed by the natural order for the shaping of new generations. But its special powers of enriching the response of the young to their experience are at present neglected and even disrupted by contemporary educational and clinical practice.

Unhappily that very knowledge of order, which we lack but yet need, is precisely what is required for a just appreciation of the function of education on the one hand and of the character of health on the other. The present drive amongst educationists for vocational and technical education urges man to shape his sons and daughters to fit a world of work. In the new Work State with which we are threatened, there is to be elaboration of energy and prodigality of material. But the background against which all this is to happen is relegated to the realm of the unsuspected. Out of energy and prodigality we are told order shall be brought forth. It must be stated clearly that this dream is vanity and illusion. If ever the educationist succeeds in using technical education to exclude from the purview of growing minds the universal background which stands behind the technicalities of work, he will so far disguise from the minds of that new generation the true character

of their situation that the culture which they profess must surely die. They will destroy the life which is in them as surely as the farmers of the prairie dust-bowl destroyed their Good Earth.

Need for Integration

The organisation of the physiology of plant, animal and man makes it clear that the response of the whole organism to its total situation is a unitary integrated function. The mind is no more than the instrument of the being which exists prior to it and which uses it in its approach to the universe of its experience. Whilst it is certainly useful to train a growing creature to use his main instrument, the attempt to divorce the instrument from the situation which requires its use is not good education. Such perversion of intellectualism as results from making it a virtuosity is disruptive. It breaks up the underlying relationship of man with the world of experience. The situation of man, anchored as it is in this relationship, is obscure and often hard, but it is inexorable. It cannot be escaped. Only when man perishes can it be broken and destroyed. In order to build his health man must affirm his situation. Nor can he cut himself off from his natural linkage with the State of Nature in which he finds himself—not even by an infinity of machines.

The machine can widen the scope of man's relationship with the universe of his experience but it can neither mass-produce a new universe nor jump the claims of life. The machine must itself undergo the discipline of man's own situation. The machine has no liberty of action in a world of work which knows nothing of the disciplines of Nature. The universe is already ordered. That order carries with it its own necessary discipline. The order is bounteous and endows the estate of man, but only when the manners of men respect the discipline which the natural order imposes. Only by bringing man up in the knowledge of his estate can he be properly educated. Only when with dignity he is able responsibly to manage that estate, can he and his culture remain healthy from generation to generation.

DIPLOMA IN YOUTH SERVICE

We note with interest that the University of Durham is arranging a year's full-time course in Youth Leadership, which includes a study of the physiology and psychology of adolescents. Further details can be obtained from the Professor of Education, Education Department, Palace Green, Durham.

FILM NOTES

GENERAL HEALTH FILMS

The following general health films are available from the Central Council for Health Education. No charge is made to borrowers in the areas of those Local Authorities (the vast majority) which subscribe to the Council's funds, but bookings should be made well in advance.

Details of films of value in connection with sex education were given in our January issue (Vol. II, No. 1).

See also the advertisement of new films on the inside back cover of this issue.

CARRY ON, CHILDREN. 16 mm. and 35 mm. Sound. 10 minutes.

A record of what is being done in wartime for the children of Britain by the health and education services. Suitable for adult audiences.

FEAR AND PETER BROWN. 16 mm. and 35 mm. Sound. 15 minutes.

Shows how irrational fears and anxieties developed during childhood may overshadow a whole career and how with knowledge they could have been avoided. Suitable for parents, children's nurses, and adult audiences generally.

BREATH OF DANGER. 16 mm. and 35 mm. Sound. 9 minutes.

Shows how diseases are spread by droplets in coughing and sneezing, and how this spread may be avoided by the use of handkerchiefs, etc. Suitable for both children and adults.

FINE FEATHERS. 16 mm. and 35 mm. Sound. 12 minutes.

Jeanne de Casalis, with her usual charming silliness, manages to teach a good deal about sound diet and the best use of rations. Suitable for adults and older children.

SKIN DEEP. 16 mm. Sound. Colour. 17 minutes.

Describes the structure and functioning of the skin, and how it can be kept in good order. Suitable for both children and adults.

FOOTSTEPS TO BEAUTY. 16 mm. and 35 mm. Sound. 10 minutes.

Shows how we depend on our feet for our poise, comfort and health, and how we can best train and care for them. Suitable for both children and adults.

UNWANTED GUESTS. 16 mm. and 35 mm. Sound. 9 minutes.

Describes the life history and habits of the head louse, the conditions under which it flourishes, how it spreads from person to person, the harm it does, and how it can be combated. Suitable for adult audiences and school biology classes.

YOUNG AND HEALTHY. 16 mm. and 35 mm. Sound. 11 minutes.

A film fantasy in which all the children in a school co-operate to drive out the 'Witch of Ill-Health,' and in which the importance of good food, fresh air and exercise are stressed. Suitable for children up to the age of about eleven years.

REVIEWS

LOOK AFTER YOURSELF, by G. H. Pumphrey. (E. J. Arnold, Leeds. 1943. Pp. 48. Illustrated. Price 8d.)

A little book of Hygiene for Seniors, illustrated with line drawings—many intended to be humorous. There is much useful information in the book, but its very brevity leads to generalisations which are limited in correct detail or the matter is not fully developed. Nevertheless, the book should stimulate interest and encourage further reading.—W. B. L.

INFANTS WITHOUT FAMILIES, by Dorothy Burlingham and Anna Freud. (Allen and Unwin. 1943. Pp. 108. Price 3s. 6d. and 5s.)

In this little book—compiled with precision and understanding observation—a new vista is opened on the education of the nursery child. The nation will have the responsibility shortly of providing nursery training for numbers of its infants to whom the war has denied family life. All those who are interested in this problem—nurses, teachers and social workers—will find the records interesting and valuable and the deductions fruitful for discussion.—F. A. O.

A HANDBOOK FOR THE IDENTIFICATION OF INSECTS OF MEDICAL IMPORTANCE, by John Smart, Ph.D. With chapters on fleas by Dr. Karl Jordan, F.R.S., and on arachnids by R. J. Whittick, B.Sc. (London: British Museum, Natural History. 1943. Pp. 257, App. 8. Fig. 117, Plates xii. Price 15s.)

The first essential in dealing with any insect pest is correct identification. Not until the insect has been labelled is it possible to tap the sources of information about it; to learn whether it is a harmless creature or a potential danger; and if it belongs to the latter class to ascertain the measures recommended for its control. As befits a volume published by the British Museum, Dr. Smart's book limits itself to this prime aim. It deals comprehensively with all the insects and other arthropods of the Old World which have been proved or are likely to affect the health or personal comfort of man. New World insects are omitted. An elementary knowledge of medical entomology is assumed, but all the details of insect anatomy needed for the purpose of identification are set out fully and clearly. The greater part of the book consists of keys to families, genera or species of insects taken from the most up-to-date sources and sometimes modified. These are supplemented by copious illustrations, many of them original, all excellently clear. This handbook will be invaluable to anyone who, without access to libraries or museums, has to identify insects affecting man. Entomologists in the Services or in the Colonial Empire will find it particularly useful.—V. B. W.

A YEAR WITH NATURE, by J. E. Roberts, B.Sc. (Arnold. 1944. Pp. 236. Figures 135. Price 3s. 6d.)

The aim of this book, as the author states, is "to send its readers out of doors with a guide as to what they may expect to find there"—throughout the year. The book is obviously written by one who has himself a deep and abiding love of nature, and he can feel assured that the book will fulfil its purpose. The photographs are excellent, and the book might well serve to give just that knowledge of *living* things upon which examiners in School Certificate Biology so rightly insist.

There are two or three minor biological errors, but they *are* only minor ones. The cover is in excellent taste.—W. W. A.

THE METABOLISM OF FAT, by Ida Smedley-Maclean (Methuen. Monographs on Biological Subjects. 1943. Pp. 104. Price 5s.)

As its title suggests, this book assumes from its readers a good working knowledge of organic chemistry, with some understanding of plant and animal physiology. The fat metabolism of mammals forms the main theme, but in order to explain this, relevant facts are quoted from many other fields of research. These are utilised both to show that mammalian metabolism is not unique and also to indicate the possible lines of development where the knowledge of mammalian function is incomplete. The details have been skilfully arranged to form a logically developing theme. In spite of its small size, this book is packed with information, and will be of special value to those who have a general knowledge of the subject, and desire up-to-date detail.—A. M. S.

FRUIT TREE GROWING, by Raymond Bush. Vol. I Apples, Vol. II Pears, Quinces and Stone Fruit. (Penguin Handbooks. 1943. Pp. 168 and 158. Price 9d. each.)

When a practical man writes on a practical subject, what he writes is usually worth reading. Mr. Bush's two little books on fruit tree growing will commend themselves to amateur and professional gardeners, for the mass of practical information they contain and their refreshing readability. The notes and tables on fertility and pollination are especially valuable, as they will save growers the disappointments that follow the planting of self-sterile or inter-sterile trees. The two volumes constitute a very worthwhile contribution to the literature on the subject.—L. J. W.

OUR FOOD FROM FARM TO TABLE, by Lionel Edwards, with Descriptions and Questions by A. Voysey and E. J. Stowe. (Methuen. 1943. Pp. iii + 73. Price 2s. 6d.)

This little book illustrates the cultivation and preparation of twenty typical foodstuffs. Each section is made up of a page of line drawings and a page of descriptive letterpress. Children would be interested in the projects and gain a great deal of information and stimulation from the book—especially from the pictures. The brevity of the letterpress, however, leads to generalisations which are not always clear and need elucidation by a teacher. The questions at the end, in some cases, call for research and actual observation on farms, etc., if satisfactory answers are to be obtained.—W. B. L.

PLANNING OF SCIENCE. Proceedings of a Conference held in London, January 1943. (The Association of Scientific Workers, Hanover House, 73, High Holborn, W.C.1. Pp. 127. Price 2s. 6d.)

Although the Association appreciates the scientific and technical contributions already made during the war, it is convinced that science and technology can be harnessed still more effectively both to the war effort and to post-war planning. The formation of a Central Scientific and Technical Board in direct contact with the War Cabinet is suggested. The Central Register should provide a nucleus to deal with post-war planning. Eminent scientists and technicians have contributed to make this Report an exceedingly valuable one.—J. W. T.

EDUCATIONAL RECONSTRUCTION. Notes on the White Paper. (The Association of Scientific Workers, Hanover House, 73, High Holborn, W.C. 1. 1943. Pp. 11. Price 3d.)

While the main proposals of the White Paper receive support, certain changes and additions are deemed necessary. The Council of the A.Sc.W. supports the T.U.C. proposal "to

free state education from all traces of denominational religion;" deplores the omission of any references to maintenance grants, multilateral secondary schools and vocational guidance; and advocates half-time day continuation schools for those leaving school at the minimum age and the abolition of evening classes, except for recreational purposes. This pamphlet merits careful reading.—J. W. T.

BARNARDO OF STEPNEY, by A. E. Williams. (Allen & Unwin. 1944. Pp. 227. Price 12s. 6d.)

This book is one of the most fascinating that it has been my good fortune to have read. It is packed from cover to cover with authoritative stories relating to the wonderful work of that dynamic individual, Dr. Barnardo; stories that are sure to appeal to readers of all tastes. If there is anyone who expects to find any sentimentality they will be sorely disappointed, because the whole narrative is an account of the life work of a man who was practical before everything else. Therein we read stories embracing tragedy, comedy, and romance, in real life. This is an almost unique book, because the author tells us candidly about Barnardo's faults, as well as his virtues—surely a remarkable departure from the beaten tracks of a biographer! After reading this life-story one feels that "Though Barnardo is dead, he yet speaketh" through these pages.—W. B.

SHORT NOTICES

HEALTH HANDBOOK. (Girl Guides' Association, 17–19, Buckingham Palace Road, London, S.W.1. Pp. 40, illustrated. Price 6d.)

An attractively illustrated little booklet which should be read not merely by Guiders, but by all youth leaders.

THE PLACE OF SOCIAL BIOLOGY IN EDUCATION, by Sir Cyril Norwood, M.A., Hon.D.Litt., and W. L. Sumner, B.Sc. (Pp. 32. Price 9d.). CONGENITAL SYPHILIS by David Nabarro, M.D. (Pp. 16. Price 6d.). BED-WETTING, by Sir Drummond Shiels, M.C., M.B. (Pp. 28. Price 6d.). BARRIERS TO HUMAN LIFE, by James Douglas. (Pp. 27. Price 6d.). PRIVATE AND PERSONAL PROBLEMS (Pp. 36. Price 6d.). WHY DOESN'T THE WANTED BABY ALWAYS COME? by Dr. Mary Barton. (Pp. 11. Price 6d.).

A useful series of British Social Hygiene Council Publications (Tavistock House, Tavistock Square, London, W.C.1.). Authoritatively written and (with the exception of the last-mentioned) in particularly attractive covers.

A SHORT COURSE OF FIRST AID IN ACCIDENTS, by Lieut.-Col. Sir John Collie, M.D., and Major C. F. Wightman, F.R.C.S.Eng. (Gill. Pp. 48, illustrated, Price 6d.)

Will be useful especially for teachers, youth leaders and those responsible for first aid in factories.

A SERIES OF LECTURES (Bristol Education Committee, 1–2, Cecil Road, Clifton, Bristol. Pp. 64. Price 2s. 6d.).

A report of lectures delivered at a teachers' vacation course in Sex Education during January, 1944. Lecturers include Professor Fletcher, Dr. R. J. Irving-Bell, Miss M. Bowen, Dr. F. Bodman, Miss M. Dursdon, Dr. R. C. Mace, Dr. R. Phillips, Miss. V. D. Swaisland and Mr. Cyril Bibby.

HOME AND FAMILY LIFE (Student Christian Movement Press. Pp. 64. Price 1s.)

Published for the British Council of Churches, this pamphlet contains a valuable analysis of present trends in family structure and sex attitudes and a reasoned case for Christian standards.